

Section 2-1: Inductive Reasoning and Conjecture

By the end of this lesson, you should be able to answer:

- How do you make conjectures based on inductive reasoning?
- How do you find counterexamples?

Define the following:

1. Inductive Reasoning

2. Conjecture

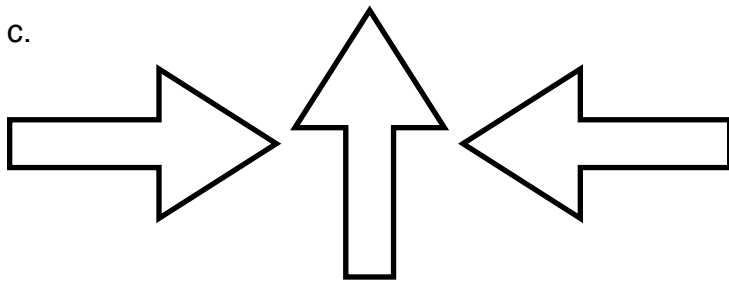
3. Counterexample

Example 1: Write a conjecture that describes the pattern in each sequence. Then use your conjecture to find the next item in the sequence.

a. 7, 10, 13, 16

b. 3, 12, 48, 192

c.



Example 2: Make a conjecture about each value or geometric relationship. List or draw some examples that support your conjecture.

a. The product of an odd and even number

b. The radius and diameter of a circle

Example 3: The table shows the total sales for the first three months that Matt Mitarnowski's Wonderporium is open. Matt wants to predict the sales for the fourth month.

Month	1	2	3
Sales	\$400	\$800	\$1600

Make a conjecture about the sales in the fourth month and justify your claim.

Example 4: Based on the table showing unemployment rates for various counties in Texas, find a counterexample for the following statement: *The unemployment rate is highest in the cities with the most people.*

County	Armstrong	Cameron	El Paso	Hopkins	Maverick	Mitchell
Population	2,163	371,825	713,126	33,201	50,436	9,402
Rate	3.7%	7.2%	7.0%	4.3%	11.3%	6.1%

Problem Set:

"Success is the sum of small efforts, repeated day in and day out."
- Robert Collier